

"The explosion in modern telecommunications technology has proved to be both a blessing and a curse for the deaf. Since the beginning of the century, telephone and radio have created greater isolation [...] as society shifted to audio communications for more of its [...] transactions."

--A Nationwide Communication System for the Hearing Impaired: Strategies toward Commercial Implementation (1981)

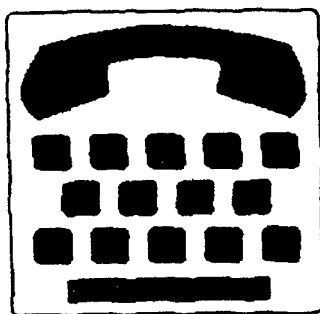


Figure 1
International TDD Symbol

3.3 Definitions.

Text Telephone.

Machinery or equipment that employs interactive graphic (i.e., typed) communications through the transmission of coded signals across the standard telephone network. Text telephones can include, for example, devices known as TDDs (telecommunication display devices or telecommunications devices for deaf persons) or computers.

The landmark Americans with Disabilities Act (ADA), enacted on July 26, 1990, provides comprehensive civil rights protections to individuals with disabilities in the areas of employment (title I), State and local government facilities (title II), public accommodations and commercial facilities (title III), and telecommunications (title IV). Both the Department of Justice and the Department of Transportation, in adopting standards for new construction and alterations of places of public accommodation and commercial facilities covered by title III and public transportation facilities covered by title II of the ADA, have issued implementing rules that incorporate the Americans with Disabilities Act Accessibility Guidelines (ADAAG), developed by the Access Board.

U.S. Architectural and Transportation Barriers Compliance Board

BULLETIN #3: TEXT TELEPHONES

Why are text telephones required?

In drafting the Americans with Disabilities Act, Congress cited the discriminatory effects of communications barriers in particular and directed the Access Board to include requirements for communications for persons with sensory impairments in its *ADA Accessibility Guidelines (ADAAG)*.

Scoping and technical criteria were developed for assistive listening devices, emergency communications systems, visual alarms and auxiliary notification devices, volume controls at public telephones, and public text telephones for persons with speech or hearing impairments.

What is a text telephone? ... a TDD? ... a TTY?

Text telephone is a generic term for devices that provide access to real-time telephone communications for persons with hearing or speech impairments. Like computers with modems, text telephones provide some form of keyboard input and visual display output to callers and receiving parties connected over standard telephone lines and networks. A call from one text telephone can only be received by another--and compatible--text telephone. The devices, however, can be used by and between both hearing and non-hearing persons.

Text telephones enable non-voice communication with other users of such devices through the public telephone network. Two-way communications between individuals who use text telephones and those who do not is accomplished through 24-hour operator-assisted relay services mandated by title IV**** of the ADA.

Early models were known as TTYs (from their origin in teletype technology); current versions, both portable and fixed, are more frequently called TDDs (telecommunications devices for deaf persons), particularly on the signage required in public places to identify or direct users to them. The term *text telephone* is used throughout the *ADA Accessibility Guidelines* to include all such devices, including computers connected over telephone lines.

"Users were most concerned about being able to request assistance, relay information, and respond to emergencies away from home."

*--TDD Final Report
The Access Board (1984)*

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For information on title I regulations for reasonable accommodations for employees, contact the Equal Employment Opportunity Commission (EEOC) ADA Information line at (800)800-3302 (TDD) or (800)669-3362 (voice).

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For information on title II regulations for program accessibility in existing State and local government buildings and effective communications by public entities, contact the Department of Justice ADA Information line at (202)514-0381 (TDD) or (202)514-0301 (voice).

For information on title III regulations for barrier removal in existing buildings or auxiliary aids and services for public accommodations, contact the Department of Justice ADA Information line at (202)514-0381 (TDD) or (202)514-0301 (voice).

For information on title IV regulations on telephone relay services, contact the Federal Communications Commission (FCC) at (202)632-6999 (TDD) or (202)632-7260 (voice).

Text telephone capability may be integral with or accessory to a telephone. Many of the newer public pay telephones--both coin- and card-operated--incorporate TDD technology. One model provides a vandal-proof metal drawer for attachment beneath a public pay telephone housing. The outgoing call is made conventionally, using the telephone keypad, with the handset placed in an adjacent cradle. The drawer, which contains the keyboard and screen, automatically opens for use when the call is answered by another text telephone. If the call is not answered by a text telephone, the drawer will not operate. Another model has a handset cradle, small display screen, and keyboard within an enclosure that can be installed next to a wall-mounted public pay telephone. A portable device may also be permanently secured within or adjacent to a telephone enclosure. Other installations may provide only a shelf and power outlet for a portable TDD. Weatherproof text telephones were not available when ADAAG was under development and thus exterior installations are not currently required. However, several manufacturers now produce units for outdoor use. It is likely that scoping for exterior text telephones will be addressed in the guidelines for state and local government (title II) facilities now being developed by the Access Board.

Portable units can service office- and residential-type telephones as well. Devices typically comprise an acoustic coupler for the telephone handset, a simplified keyboard, and an LED message display. When connected to a standard power outlet, the TDD converts typed messages into audible tones that can be transmitted through the direct-dial network to a receiving TDD. Top-of-the-line equipment incorporates print-out and recording capability in many models; lightweight portable versions are useful for travelers.

Businesses that wish to provide text telephone service may acquire a portable TDD that can be used to answer calls on any voice number or line. An incoming text telephone call can usually be identified by a high-pitched, electronic or beeping sound that precedes it. Some TDDs are equipped with announcers whose recorded message signals a text telephone call. For instructions on handling text telephone calls and a lexicon of commonly-used TDD phrases and abbreviations, request the Access Board's free brochure on TDD communications.

Where are text telephones required?

Because telephone communications are so essential to the conduct of business and personal affairs today, text telephone requirements appear in each of the substantive titles of the ADA: TDDs may be a reasonable accommodation for an employee under title I*; a component of program accessibility or effective communications under title II**; an instance of readily-achievable barrier removal or an auxiliary aid in an existing place of public accommodation under title III***; or a link in the telecommunications relay system specified by title IV****.

Additionally, the installation of text telephones is required under certain conditions in new construction and alterations of buildings and facilities covered by titles II and III of the Act. ADAAG contains scoping and technical provisions that specify these conditions and installations. This bulletin deals largely with those requirements.

**4.1.3 Accessible Buildings:
New Construction.**

4.1.3 (17)(c)

[Public Telephones]

(i)

If a total number of four or more public pay telephones (including both interior and exterior phones) is provided at a site, and at least one is in an interior location, then at least one interior public text telephone shall be provided.

(ii)

If an interior public pay telephone is provided in a stadium or arena, in a convention center, in a hotel with a convention center, or in a covered mall, at least one interior public text telephone shall be provided in the facility.

(iii)

If a public pay telephone is located in or adjacent to a hospital emergency room, hospital recovery room, or hospital waiting room, one public text telephone shall be provided at each such location.

4.1.3(17)(d)

Where a bank of telephones in the interior of a building consists of three or more public pay telephones, at least one public pay telephone in each such bank shall be equipped with a shelf and outlet in compliance with 4.31.9(2).

**4.1.6 Accessible Buildings:
Alterations.**

4.1.6(1)(e)

At least one interior public text telephone complying with 4.31.9 shall be provided if:

(i)

alterations to existing buildings or facilities with less than four exterior or interior public pay telephones would increase the total number to four or more telephones with at least one in an interior location; or

(ii)

alterations to one or more exterior or interior public pay telephones occur in an existing building or facility with four or more public telephones with at least one in an interior location.

In new construction, at least one public pay text telephone is required:

- in buildings *with four or more* public pay telephones on-site, if one is interior, and at rail station entrances and airport terminals, concourses, and baggage claim areas *if four or more* public pay telephones are provided in those locations:
- in transit stations, airports, stadiums, arenas, convention centers, hotels with convention centers, and covered malls *if any* interior public pay telephones are provided, and
- in or adjacent to hospital emergency rooms, recovery rooms, and waiting rooms *if a single* public pay telephone is provided.

Additionally, in new buildings with banks of three or more interior public pay telephones, one telephone at each bank must be equipped with a shelf and power outlet for a portable TDD.

In alterations, a text telephone would be required:

- in facilities that add public pay telephones *for a total of four or more* telephones on-site, if one is interior, or
- in facilities that alter public pay telephones, *if four or more* are provided and one is interior.

Alterations include the replacement of existing public pay telephones with units of a different type, relocating existing telephones, or installing new telephones where none had previously been located. Path-of-travel obligations under ADAAG 4.1.6(2) also include telephone scoping that may require the installation of a text telephone.

Reinstalling an existing unit at an accessible height to comply with title III requirements for barrier removal in a place of public accommodation or replacing an existing non-functioning telephone with a new unit of the same type would not trigger alterations provisions. However, routine maintenance of this sort may offer cost-effective opportunities to expand access for persons with hearing or speech impairments.

Why are there provisions for both fixed and portable text telephones?

Many persons with hearing or speech impairments travel with portable TDDs to ensure convenient and timely access to telephone communications. Since permanently-fixed public text telephones are only required in limited circumstances where use rates are—or are expected to be—high, ADAAG also includes provisions for accommodating portable units at other locations. Thus, a shelf and power outlet must be installed at one pay telephone in every bank of three or more public pay telephones provided in new construction. Travelers who carry laptop computers will also find a shelf and outlet useful.

10.3.1(12) [Fixed Facilities and Stations.]

The following shall be provided in accordance with 4.31.9:

(a)

If an interior public pay telephone is provided in a transit facility (as defined by the Department of Transportation) at least one interior public text telephone shall be provided in the station.

(b)

Where four or more public pay telephones serve a particular entrance to a rail station and at least one is in an interior location, at least one interior public text telephone shall be provided to serve that entrance.

Compliance with this section constitutes compliance with section 4.1.3(17)(c).

10.3.2(2)

[Key Stations]

[as in 10.3.1 above]

10.4.1(4) [Airports.]

Where public pay telephones are provided, and at least one is at an interior location, a public text telephone shall be provided in compliance with 4.31.9. Additionally, if four or more public pay telephones are located in any of the following locations, at least one public text telephone shall also be provided in that location.

(a)

a main terminal outside the security areas;

(b)

a concourse within the security areas;

or (c)

a baggage claim area in a terminal.

Compliance with this section constitutes compliance with section 4.1.3(17)(c).

Where must the shelf and outlet be located?

ADAAG establishes a performance standard for the location of the shelf and outlet required to serve a portable text telephone. The shelf must provide a minimum vertical clearance of 6 inches to allow different types of portable text telephones to be connected (a shelf 10 inches square will accommodate most models). Specifiers must ensure that the handset is compatible with a portable TDD and that its cord is long enough for the receiver of the public pay telephone to fit into the acoustic coupling when the portable unit is placed on the shelf. The power outlet must be in or adjacent to the telephone enclosure so that portable TDDs that operate on electric current can be used (the cord on most portable units is about 3 feet long).

What is meant by equivalent facilitation?

ADAAG allows flexibility to design for unique and special circumstances and to facilitate the application of new technologies. Providing a portable text telephone at a hotel registration desk instead of a fixed text telephone at a nearby public pay telephone is an example of equivalent facilitation. The public pay telephone must be equipped with the requisite shelf and outlet to support the portable TDD; the portable device must be as available to users as are the facility's other public pay telephones, and directional signage must indicate where a portable unit can be obtained for use.

Are TDD directories required at public pay text telephones?

Where telephone books are provided at other public pay telephones, it is recommended that a text telephone directory also be provided at the text telephone. However, this is not required by ADAAG. An international TDD directory is available from:

Telecommunications for the Deaf, Inc.
8719 Colesville Road, Suite 300
Silver Spring, MD 20910
301-589-3006 (TDD) / 301-589-3786 (Voice)

TDI also offers a list of manufacturers and suppliers of portable TDDs, public pay text telephones, and other communications devices that do not require voice operation. A training video on using a TTY/TDD is also available.

How do users know that--and where--text telephones are available in a facility?

The international TDD symbol (see Figure 1) must be displayed where required text telephones are provided. At banks of telephones where no text telephone is installed, directional signage must indicate the location of the nearest public text telephone (if one is located in the facility). Where there are no banks of telephones, the directional signage should be located at the building entrance (for example, in the building directory).

**4.31.9 Text Telephones
Required by 4.1.**

(1)

Text telephones used with a pay telephone shall be permanently affixed within, or adjacent to, the telephone enclosure. If an acoustic coupler is used, the telephone cord shall be sufficiently long to allow connection of the text telephone and the telephone receiver.

(2)

Pay telephones designed to accommodate a portable text telephone shall be equipped with a shelf and an electrical outlet within or adjacent to the telephone enclosure. The telephone handset shall be capable of being placed flush on the surface of the shelf.

The shelf shall be capable of accommodating a text telephone and shall have 6 in (152 mm) minimum vertical clearance in the area where the text telephone is to be placed.

(3)

Equivalent facilitation may be provided. For example, a portable text telephone may be made available in a hotel at the registration desk if it is available on a 24-hour basis for use with nearby public pay telephones. In this instance, at least one pay telephone shall comply with paragraph 2 of this section. In addition, if an acoustic coupler is used, the telephone handset cord shall be sufficiently long so as to allow connection of the text telephone and the telephone receiver. Directional signage shall be provided and shall comply with 4.30.7.

**4.30.7 Symbols of Accessibility.
(3) Text Telephones.**

Text telephones required by 4.1.3(17)(c) shall be identified by the international TDD symbol (Fig. 43(C)). In addition, if a facility has a public text telephone, directional signage indicating the location of the nearest text telephone shall be placed adjacent to all banks of telephones which do not contain a text telephone. Such directional signage shall include the international TDD symbol. If a facility has no banks of telephones, the directional signage shall be provided at the entrance (e.g., in a building directory).

Should a required text telephone--or TDD capability--be provided at a wheelchair accessible telephone?

With careful design and placement of a standard TDD/text telephone adjacent to an accessible payphone, it is possible to serve all users with a single station. However, text telephone units that are affixed below a standard pay telephone mounted at a height accessible to people in wheelchairs will be too low for standing persons to use the keyboard comfortably or to see the display screen. They may also obstruct the required knee space. ADAAG distinguishes--in both scoping and technical provisions--between access to telephones for persons who use wheelchairs, persons who are hard of hearing, and persons who do not communicate by voice.

Where can public pay text telephones be obtained?

TDD capability is typically added to a standard telephone housing and does not affect use of the payphone by the hearing public. Units are commercially available from the same sources as are standard public pay telephones and enclosures. The following firms have advised the Access Board that they manufacture public pay text telephones:

- **Ultratec**
450 Science Drive
Madison, WI 53711
(608)238-5400 (TTY/Voice)
(800)482-2424 (TTY/Voice)
(608)238-3008 (FAX)
- **Krown Research, Inc.**
129 Sheldon Street
El Segundo, CA 90245
(800)833-4968 (TDD/Voice)
in CA: (213)322-3202
- **AT&T** also offers a card-operated telephone that can incorporate a TDD option. However, it does not permit coin operation and should only be used as a supplemental unit.

The listing of these manufacturers is for informational purposes only and does not constitute an endorsement or compliance with ADA requirements. The Access Board does not review or certify plans or products as meeting ADAAG standards. All devices should be carefully evaluated against ADA regulations and ADAAG provisions for design, operation, and installation.

In new construction, TDD equipment can be provided as part of the public pay telephone contract with a telephone company, independent payphone provider, or route subcontractor. For existing installations, contact the pay telephone service provider to add a TDD to an existing bank or to modify an existing payphone enclosure with a shelf and power outlet to accommodate a portable device. Adding a shelf or outlet or--where vandalism will not be a concern--attaching a portable TDD adjacent to an existing public telephone can also be done by a carpenter or construction contractor.

TDD specifiers and purchasers should be aware of interface requirements when acquiring new equipment. TTY technology was standardized on Baudot (5-bit) communications codes in the 1960s; computer applications require an ASCII (8-bit) format. While current TTY/TDD devices continue to use Baudot technology, most newer units have an ASCII option available, and many are compatible with both systems. Computer-based text telephones use ASCII, but can be programmed to receive and send Baudot. Telephone emergency services (911 and similar fast-dial lines) provided by public entities

Appendix

A4.31.9 Text Telephones.

A public text telephone may be an integrated text telephone pay phone unit or a conventional portable text telephone that is permanently affixed within, or adjacent to, the telephone enclosure. In order to be usable with a pay phone, a text telephone which is not a single integrated text telephone pay phone unit will require a shelf large enough (10 in (255 mm) wide by 10 in (255 mm) deep with a 6 in (150 mm) vertical clearance minimum) to accommodate the device, an electrical outlet, and a power cord. Movable or portable text telephones may be used to provide equivalent facilitation. A text telephone should be readily available so that a person using it may access the text telephone easily and conveniently. As currently designed, pocket-type text telephones for personal use do not accommodate a wide range of users. Such devices would not be considered substantially equivalent to conventional text telephones. However, in the future as technology develops, this could change.

This technical assistance is intended solely as informal guidance; it is not a determination of the legal rights or responsibilities of entities subject to the ADA.

must be compatible with Baudot format. Although it is likely that the more flexible and accommodating ASCII format will soon dominate the market, Baudot models will certainly continue in use for many years.

Other issues affecting the specification of text telephones include acoustic vs. electric coupling of the public telephone receiver; maintenance and vandalism; convenience of use; purchase and installation cost, and coin vs. credit-card operation.

What other regulations may require the provision of a text telephone?

Under the Department of Justices title III regulations, a public accommodation must provide a TDD when customers, clients, patients, or participants are permitted to make outgoing calls on more than an incidental convenience basis. For example, TDDs must be made available on request to hospital patients or hotel guests if in-room phone service is provided.

Stores and shops, doctor's offices, restaurants, and similar establishments are not required to offer TDD service for persons with hearing or speech impairments making inquiries, appointments, or reservations since this can be accomplished through the relay system established under title IV of the ADA.

However, emergency telephone services (911 and similar fast-dial lines) offered by public entities covered by title II must offer direct access to non-voice callers. Other state or local government communications with applicants and beneficiaries require the use of TDDs or equally-effective telecommunications systems, which may include relay services.

What other situations might benefit from the provision of a text telephone?

A hospital or hotel front desk may be equipped with a TDD so that patients or guests using TDDs in their rooms can access and be notified of in-house services. A text telephone can also be used to provide effective non-voice communications where closed-circuit security, emergency, and house telephones and similar devices requiring voice communication are installed.